

6. The system of claim 1 wherein the CMOS imaging sensor generates lines of image data at a speed greater than one line every 15.6 microseconds.

5 7. The system of claim 1 wherein the CMOS imaging sensor generates frames of image data at a rate greater than one frame every 30 milliseconds.

10 8. The system of claim 1 wherein the CMOS imaging sensor further comprises a pixel shift system that enables a readout sequence to start at a pixel series position that reduces noise and improves signal quality.

15 9. The system of claim 8 wherein the pixel shift system enables the readout sequence to start at a fifth pixel series position.

00693322-102000

10. A high-speed CMOS imaging system comprising:
a CMOS active pixel sensor generating pixel data;
an controller coupled to the CMOS active pixel sensor,
the controller receiving the pixel data and generating pixel
5 line data; and

wherein the pixel line data is generated at a rate
greater than one line every 15 microseconds.

11. The high-speed CMOS imaging system of claim 10
10 wherein the controller further comprises a pixel shift
system initiating a pixel readout sequence to start at a
pixel series position.

12. The high-speed CMOS imaging system of claim 10
15 wherein the controller further comprises a framing system
generating frames of image data at a rate greater than one
frame every 30 milliseconds.

009998.0002 DALLAS 395309 v1

13. A method for generating image data of a component for use in inspecting the component comprising:

generating pixel data using a CMOS imaging system;

transferring the pixel data as a plurality of pixel
5 lines;

assembling the pixel lines into a frame; and

wherein the frame is assembled in less than 30
milliseconds.

10 14. The method of claim 13 wherein generating pixel data using a CMOS imaging system further comprises generating pixel data using a CMOS active pixel sensor.

15 15. The method of claim 13 wherein generating pixel data using a CMOS imaging system further comprises generating pixel data using a Photobit model PB 1024 CMOS active pixel sensor.

20 16. The method of claim 13 wherein transferring the pixel data as the plurality of pixel lines further comprises:

generating a reset command;

initiating a pixel line at the next clock cycle after
the reset command;

25 waiting a predetermined number of clock cycles to generate a next pixel line; and

wherein the predetermined number of clock cycles is less than 208 clock cycles.

5

10

15

SECRET